



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

15

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,579	11/28/2003	Norden E. Huang	GSC 14, 608-1	2305

21872 7590 02/17/2005

NASA GODDARD SPACE FLIGHT CENTER  
OFFICE OF PATENT COUNSEL  
MAIL CODE 503  
GREENBELT, MD 20771

EXAMINER

TSAI, CAROL S W

ART UNIT PAPER NUMBER

2857

DATE MAILED: 02/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/729,579	<b>Applicant(s)</b> HUANG, NORDEN E.	
	<b>Examiner</b> Carol S. Tsai	<b>Art Unit</b> 2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2003.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☒ Claim(s) 4-10 and 15-20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/28/2003</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 101*

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-29 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims 1 and 11 recite no clearly defined practical application of the claimed method or do not draw a conclusion as to the final end result of the mathematical operation being directed toward a practical application. Additionally, the method claims do not fall into either of the “safe harbors” defined in the Guidelines for Computer-Implemented Inventions in that there is no manipulation of measured data representing physical objects or activities to achieve a practical application (pre-computer process activity) or the performance of independent physical acts (post-computer process activity). The examiner submits that the claimed process merely analyzes a signal using mathematical functions without limitation to a practical application.

Claims 1 and 11 recites signal analysis that is not tied to any physical structure for inputting the signal, extracting a set of Intrinsic Mode functions, or generating a set of mean frequency. The Examiner submits that the claimed method consists solely of the manipulation of an abstract idea is not concrete or tangible.

*Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims are rejected under 35 U.S.C. 102(a) as being anticipated by U. S. Patent No. 6,507,798 to Salvino et al.

Salvino et al. disclose a computer implemented method of analyzing a signal comprising: inputting the signal (see col. 2, lines 20-23); extracting a set of Intrinsic Mode Functions from the signal (see col. 3, lines 11-15); and generating a set of mean frequency functions from the Intrinsic Mode Functions (see Abstract, lines 8-12; col. 1, line 63 to col. 2, line 2; col. 3, lines 11-15).

As to claim 11, Salvino et al. also disclose a computer implemented method of analyzing a signal comprising: inputting the signal (see col. 2, lines 20-23); extracting a set of Intrinsic Mode Functions from the signal (see col. 3, lines 11-15); and generating instantaneous frequency based on critical points of the signal (see col. 1, lines 54-62).

As to claim 12, Salvino et al. also disclose generating a set of mean frequency functions from the Intrinsic Mode Functions (see Abstract, lines 8-12; col. 1, line 63 to col. 2, line 2; col. 3, lines 11-15).

As to claims 2 and 13, Salvino et al. also disclose summing up the mean frequency functions (see col. 2, lines 35-37).

As to claims 3 and 14, Salvino et al. do not disclose expressly displaying the sum of the mean frequency functions.

Art Unit: 2857

It is, however, considered inherent that Salvino et al. display the sum of the mean frequency functions (see col. 2, lines 12-15), because a computer is known to have a function of displaying in order that a visual display can be generated for further analyzing.

*Allowable Subject Matter*

4. Claims 4-10 and 15-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Conclusion*

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Larsson et al. discloses a method and arrangement for the nondestructive determination of a property of an object including a conveyer for movably supporting the object.

Uhlig discloses vibration damping properties of brake rotors and drums that can be represented accurately and repeatably by a single factor obtained from a curve fitting based on an eighth order sine function.

Donskoy et al. disclose a method and apparatus for nondestructive testing and evaluation of materials and mechanical structures to determine their integrity reducing contact-type flaws such as cracks, fractures, delamination, unbondings, etc. and also presence of ice on a structure.

McGugin et al. disclose a bridge monitoring system uses laser light reflected from structural members of a bridge to create velocity and displacement time signals of the bridge's vibratory response to quiescent conditions, and converts the sensed velocity and displacement time data to frequency domain data to provide a "signature" waveform for the bridge indicative of its structural characteristics.

Partyka et al. disclose a method of processing seismic data to provide improved quantification and visualization of subtle seismic thin bed tuning effects and other sorts of lateral rock discontinuities.

White discloses an estimate of amplitude of a sinusoidal signal being computed from a value of the signal by computing the value of a quadrature-phase signal and computing the amplitude based on the value of the signal and the value of the quadrature-phase signal.

Pechersky discloses a non-destructive method and apparatus for determining the structural integrity of materials by combining laser vibrometry with damping analysis techniques to determine the damping loss factor of a material.

### ***Contact Information***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol S. W. Tsai whose telephone number is (571) 272-2224. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (571) 272-2216. The fax number for TC 2800 is (703) 872-9306. Any inquiry of a general nature or relating to the status of this

Art Unit: 2857

application or proceeding should be directed to the TC 2800 receptionist whose telephone number is (571) 272-1585 or (571) 272-2800.

In order to reduce pendency and avoid potential delays, Group 2800 is encouraging FAXing of responses to Office actions directly into the Group at (703) 872-9306. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a PTO deposit account. Please identify the examiner and art unit at the top of your cover sheet. Papers submitted via FAX into Group 2800 will be promptly forwarded to the examiner.



Carol S. W. Tsai  
Patent Examiner  
Art Unit 2857

02/16/05